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* Z*NET NEWSWIRE

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MIDI SHOWS IN LOS ANGELES

Last weekend, Goodman's Music had a gala two-day MIDI show and sale at Hollywood's Beverly Garland Hotel. Atari's Mike Groh attended the event that included significant support for Atari computers. Then

Sunday, March 29, Mike attended a CUBASE/STEINBERG event hosted by Los Angeles's Mid-Cities Computer store. Reps from the manufacturers were "thrilled" with the turnout and interest in the new high-line of their software, designed to maximize the potential of the Atari TT030 in music studios. The continuing "Professional Series Music Seminars" will include a showing of Hybrid Arts' Digital Master EX and "the NEW Hybrid Arts product line" in another show this Sunday, April 5. Call Mid-Cities for information at 310-867-0626.

NEW TOUCH-UP COMING FROM MIGRAPH

Users of Mega STe and TT computers have had to disable their caches to use the current Touch-Up software (version 1.69). The problem has shown itself in the inability to scan an image without stray repetitions, like vivid shadows, around all images scanned with the cache in the normal position. The interim fix is simply to disable the cache before scanning. According to Migraph, a new version (1.8) of the Touch-Up scanning and editing software will be released in May. While details are not available yet, the marked increase in version number may indicate considerable improvements and new features. Watch Z*Net for more info as it becomes available.

CRAZY DOTS HAS NEW MODEL AND NEW LOWER PRICE

Gribnif Software has announced that their imported graphics card "Crazy Dots" has been well received, and that the volume they have experienced has allowed them to reduce the retail pricing. Crazy Dots 8 is the original "video display adapter" product, and will drive VGA and gray scale monitors with resolutions up to 1,664 X 1,200 and up to 256 colors or gray scales at once. Available in Megabus and VME versions, the price has been reduced by \$150 from \$999.95 to \$859.95. If that isn't enough power for you, the new Crazy Dots 15 will do 32,768 colors or gray scales and the same resolutions. The new model is priced at the old model's original price; \$999.95, and owners of the older model may upgrade for \$199.95. Gribnif, P.O. Box 350, Hadley, MA 01035, phone 413-584-2565.

SALES-PRO VERSION 6.10 RELEASED

The popular and powerful point-of-sale and inventory control system for the Atari ST has been updated by Hi-Tech Advisors. New features of Version 6.10 include 3 different payment types, more sorts on customer lists, displayed receivables balances, plus many other features, more speed, and bug fixes. Sales-Pro comes in many configurations starting as low as \$99. Owners of older versions should contact Hi-Tech for upgrade information. P.O. Box 128, Ravena, NY 12143-0128, phone 518-756-3800.

POWERPOINT DEBUTS WITH NEW NETWORK

Chris Latham, author of the Universal Item Selector and the Universal Network (marketed by A & D Software) has formed a new company and announced that he will offer no further support of the earlier products or company. Latham's new company is called PowerPoint Software, and the first product from his new company is PowerNet, billed as the most powerful networking system to date for the Atari ST/TT line of computers. Similar to his earlier network design, the system works with Midi, LanTech LT101 and LT201 cartridges, as well as with the Mega STe/TT Local Talk ports. PowerPoint is offering a limited 'trade-in' for registered owners of Universal Network or SGS Net network software.

The upgrade plan offers a complete 2-Node 'Starter Set' of PowerNet for 50% off of the regular \$99 price. To participate, owners of the products must send in their FORMATTED original master program disks along with \$49.50 (plus \$5 S&H). Additional Nodes are \$55 each; Midi connector boxes are \$20 each; Local Talk connector boxes are \$25 each; and a special 'Midi 2-Node Package' (complete with 2 connector boxes) is \$120. PowerPoint Software, P.O. Box 942, Merlin, OR 97532, phone 503-479-6635.

ONE OF A KIND ATARI LAPEL PINS!!!!

The Eastside Atari Users Group, under authorization of Atari Corp., is offering a unique item that is a must to own. It is a limited edition Atari Lapel Pin. There are less than 300 of these pins in existence and no more of this style will be made. Readers of the Z-Net Forum will attest to the fact that Bob Brodie has endorsed this pin and recommends it highly. He has presented pins to Sam Tramiel and others at Atari Corp.. He wears them on his travels and is one of our biggest boosters. Due to the exposure we have had through Z-Net Magazine, Z-Net Forum, and GENie, we have sent pins all over the world. As stated earlier, this is a limited edition item. Don't wait too long and miss out on this quality product. The cost of the pins are only \$5.00 which will include shipping and handling unless you want to be nice and send an extra 50 cents. Volume discounts are available if you or your user group orders 10 or more pins. Then the price drops to \$4.50 and no need to be nice about the 50 cent postage and handling. Send your orders to: Eastside Atari Users Group, 1504 Saratoga, Collinsville, IL 62234. We accept check, money order, or if you dare... CASH! Don't pass this opportunity buy to make yourself the envy of everyone else in your user group. EVERYONE will be asking where you got it!

SHARP PC-3000 DELAYED

A couple of months back Z-Net reported that the Sharp PC-3000 was ready for release. It seems we were a little premature with that announcement as hundreds of units now sit in the Toronto warehouse waiting for a addendum to the manual to be written. Apparently if it is used the way the current manual instructs you - the date does not change and the time is not current.

FALCON UNDER WRAPS

Although some information about the new line of Atari products has filtered out in the past few weeks - Atari still remains closed mouthed about its new Falcon. Dealers and Developers signing non-disclosures may be party to some new info at the Toronto show - but no promises. Rumour has it that Atari has approached third party developers for the MS-DOS emulation add-ons. Right now you will see a lot of smoke and no fire until late fall.

INTEL PLANS RELEASE OF 486 DX2 CHIP

What is it? Well after glancing through a performance brief of some forty-five pages and a technical reference manual of over one hundred pages we find that this chip is an accelerator. When used in conjunction with the 486-50 this chip performed on average the same as a 486-66 if there was one. Perhaps we are getting to old for these speeds as we regress to remember the Atari 800XL. Need to know more? Contact Intel and ask for: Intel 486 DX2 Microprocessor Performance

Brief Order Number 241254-001 Revision 1.0 March 1992, Intel 486 DX2
Microprocessor Data Book Order Number 241245-001 Revision 1.0 February
1992.

ATARI COMES IN THIRD

In the February 10th 1992 issue of the Canadian Computer Dealer News Atari came in third right behind IBM and Apple for overall sales in Canada. IBM and Apple came in at 10.6 respectively while Atari came in at 3.2 of the market. Commodore didn't even make mention in the list while Compac and Tandy came in at 3.1.

ATARI-NET ANNOUNCED

A new network for those BBS's that choose to support the Atari platform of home computers has been announced. The name of this new network is AtariNet and can be accessed by any BBS that uses any Fido compatible mailer/msg tosser. Any BBS that wishes to join should send Netmail to either Bill Scull (1:363/112 or 51:1/0), Jim Goedhart (1:104/223 or 51:2/0) or Tony Castorino (1:102/1102 or 51:3/0). We have a parser for the Atari platform and I'm sure there are parsers for other platforms that will support multiple domains. Once you apply you will be sent a package that contains the parser and the latest node list. For any assistance you may need, you can contact any of the existing nodes and they will be more than happy to help you get started.

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* GLENCON 2 - The CODEHEADS! Exclusive for Z*Net by John Nagy

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Over 100 Southern Californians arrived by 10:30 AM last Saturday, March 28, for GLENCON 2, a "technical conference" featuring the local heroes, Charles Johnson and John Eidsvoog, better known as the CodeHeads of CodeHead Technologies. Held in an upstairs auditorium in a plush Glendale library, the event was the second in a series of support conferences sponsored by HACKS and John King Tarpinian, the people who also bring you the Southern California Atari Faire series, "The Glendale Show."

The event was opened by an hour talk and question session by Atari's Bob Brodie, who is personal friends with many of those who attended. Bob was a past president of one of the many Atari user groups that were represented from the greater Los Angeles area. Also on hand was Mike Fulton of Atari's technical group and another SoCal alum, who helped with some of the tougher hardware and software questions.

Questions outnumbered answers by a wide margin, as almost everyone in the audience had been following the "Falcon" reports that have appeared in Z*Net and online. Four out of five questions for Bob were asking for details that Bob couldn't give--yet. Bob was admirably polite and firm with his repeated refusals to "leak" more information, or even to confirm the details that have been accepted by most readers to be cast in stone. In fact, Bob urged the audience to be prepared to see final versions of the "new machines" that may differ from their expectations and the recent reports. He assured them, however, that the release versions will be outstanding and will meet their high hopes with equally high specifications.

Bob then played a short cat-and-mouse game, asking the audience "What would you REALISTICALLY hope for or expect from new Atari machines?" As the crowd called out their list of features, Bob would nod, or say "You could reasonably expect that to be our direction," or "We've been moving in that direction for some time," or occasionally, "That's not really relevant to our market," or "No consumer machine is going to offer that in the foreseeable future," or "That sort of thing would have to be part of a more upscale machine than the one we are going to be releasing first." All in all, a profile of the much rumored "Sparrow" or "Falcon 030" machine did emerge, and appears to be at least quite similar to that reported in recent Z*Net issues.

- * The new machine is the first of another series of Atari Computers that remain compatible with TOS.
- * The new machine will be in a 1040 style case for "reasons which will become obvious and very satisfying to all."
- * The new machine will use a 68030 CPU.
- * The new machine will very likely run a standard Super VGA monitor, with colors, palette, and resolution similar to or exceeding the Super VGA standards.
- * The new machine will have industry standard ports, including SCSI and others.
- * The new machine will not have VME slots, but the VME slot has not been abandoned in Atari's plans. The 1040 case dictates no slot in this particular machine.
- * The new machine will have a multi-tasking TOS.
- * It is likely that memory configurations of well over 4 meg will be possible in the machine.
- * The digital sound will be BETTER than that offered by the current "e" and TT series of computers. As these machines offer 8-bit digital sound, look for 16 bit or more. The current DMA sound will still be supported in the new machine as well.
- * The use of the Motorola DSP sound chip WOULD NOT BE CONFIRMED by Bob Brodie. However, he made no effort to refute the recurring rumor, which originated with announcements from Motorola itself (reported in Z*Net in late 1991). The "fact" of the new line of Atari computers using the DSP was in each of the unofficial stories about the machine shown privately by Atari at CeBIT earlier in March '92. The DSP is used in the NeXT computers now to provide outstanding sound digitizing power.

After a short break, the main event of the GLENCON 2 began, as John and Charles took the stage and alternately showed their products and fielded questions about them and the general future of Atari software.

Many, many questions and much interest revolved around the TEC board that allows new TOS 2.06 to be installed in old ST computers, and what all the upgrade really will do for users. The CodeHead TEC provides the complete kit with ROMs for under \$140, and includes a manual for the use of TOS 2.06 that may be more comprehensive than Atari's own

user documentation. It was asked if CodeHead would consider selling the manual alone for reference by owners of newer Atari computers that already have the newer TOS installed. Answer: Maybe soon.

WARP-9 was the other hot topic. CodeHead took over QuickST as of January 1, 1992, and has a completely re-done package that is so different, it has a new name. Warp-9 has over three dozen bug fixes and code enhancements over the last version of QuickST, and adds the CodeHead touch in configuration interface. New features are included and old ones tweaked, to give remarkable mouse, screen, background, and loading power. It should be shipping as you read this, and any QuickST or TurboST owner can upgrade for \$20 with proof of original purchase (formatted original disk, manual cover, receipt, etc.).

The balance of the conference featured an overview of line of CodeHead products, including HotWire, MaxiFile, MultiDesk Deluxe, CodeKeys, Lookit/Popit, Cherry Fonts, and the new graphics powerhouses MegaPaint, Genus, and Avant Vector. The public was invited to swarm the stage in order to get a good view of the products in action on the 19" TT monitor. (An overhead projection unit was on hand but unable to be used--the library's projector was indeed "available" as promised in the building, but not until set up time on Saturday did the library staff add that it was not allowed to be used by "outside groups.")

The conference broke up at about 1:00 PM, and resumed informally at The Computer Network, a Glendale Atari dealership. Hundreds of people turned out during the afternoon for the store's open house. Demos were done by the CodeHeads and others, and everyone got a chance to chat with the Atari Celebrities. Notable musicians stopped by, including members of The Beach Boys band.

Organizer John King Tarpinian says that the event was a success all around, and that future Glencon meetings will probably focus on MIDI and DTP, hopefully with a hands-on session with Calamus SL and other software. John's intent in the series is to acquaint users with products that are either hard to grasp by reading about them or looking at the box at dealers. With presentations by the developers themselves and opportunity for questions and answers, users can much more effectively judge their own need and ability to use high-powered software and hardware.

HACKS, the local user group headed by Tarpinian, is also preparing for this fall's "Glendale Show", to be held September 12 and 13, 1992, at the familiar Glendale Civic Auditorium in Northern suburban Los Angeles. Dealer/developer packages will be sent out beginning in MAY. For more information, contact HACKS at 818-246-7286.

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* ST - BRING ME MY MINT JULEP by Norm Weinress for Z*Net
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The magical letters, DSP, are appearing in talk about future Atari computers, but most people don't know what they mean. This is a brief introduction into Digital Signal Processing.

The "signals" we are talking about are (take a deep breath) analog waveforms. To us, that is mainly video and audio signals. When you

want to do something other than just see and hear the original picture or sound, you need to process the signal. So, to mix more than one signal, or improve it, or change it in any way, you must process it.

This processing used to be done by analog circuits, but nowadays, you can digitize it and then play with it digitally. That is, your computer can modify it. But these signals are changing rapidly, and to process them in real time, the computer has to be really fast!

That's where DSP chips come in. They are computer processing chips that are especially tailored for this work...to do tricks with digitized analog signals in real time. To do this, they have been trimmed of many functions required by a general-purpose chip, like the 68000 in your ST. That means that they usually work as a second processor in a computer, doing their special job under the direction of a regular CPU.

Adding a DSP to a regular computer gives it capabilities in creating and reproducing a lot of neat video and audio effects. Until recently, they were so expensive, only a few people used them. But as they become cheaper, many more uses for them are being discovered. Like maybe we'll be sending pictures as well as messages on our local bulletin boards, and replacing the keyboard with voice input! Well, OK, not next week. But this is the necessary first step toward those goals.

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* THANKS FOR THE MEMORY by John Nagy

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ALERT: RAM PRICES continue to fall. One megabyte DRAM chips are at or below \$7 most anywhere, while 256K chips are around \$2. One meg SIMMS cards can easily be found for \$50, and as little as \$30 each at swap meets, but look out for USED CARDS that might not be stable. 256K SIMMS (only good for bringing a 520 STe up to a meg) are only about \$15, but hard to find... except from other STe owners who have upgraded above 1 megabyte. For use in a normal ST or even an 68000 accelerated machine (not a 68030), any "speed rating" of 120 nanosecond OR LESS is fine. The smaller this number, the faster the memory, being able to properly record and deliver data in shorter times without error. These days, 80 NS is a common rating.

Upgrading your ST RAM, maybe by Yourself!

Probably the number one upgrade for Atari computers is the addition of more memory. Most of us bought a 520ST or 1040ST and soon found that we needed/wanted MORE MEMORY. There are lots of how-to articles detailing the installation of more RAM. Many companies offer kits for

you to upgrade your memory yourself, and most dealers will do it for you for a price. But what do you get, and how should you choose?

You might consider doing your own upgrade without a kit. Instructions for several upgrades can be found on Genie, CompuServe, Delphi, and BBS systems, or from your club library. But beware: there are lots of ST board revisions within each model, and plans that are written for one may NOT work for another. Atari kept things interesting by re-using board revision letters on different revisions. Except for the very competent (or adventurous) hobbyist, only a few models of Atari computers should be considered for kitless upgrades.

PLUG AND PLAY

The newer-generation machines (Stacy, TT, STe) have sockets for plug-in memory cards. Upgrading memory is as simple as changing or adding cards. You should be able to do an upgrade based on this article, but AtariUser (and I) can't be responsible for any damage you might do to your machine while trying to follow these directions. If you're in doubt, don't do it yourself.

For any work to be done inside a computer, take special care to avoid static electricity. One little snap can end the life of a computer. Working on a foil-covered table, preferably grounded, and always touching the foil before touching the computer board can help. Don't work over carpeting, and of course don't work on the innards when the power is on or attached!

Getting inside Atari computers is no big challenge. The screws that have to come out are usually in squarish holes. Other ones can stay, at least until you are inside. Little bend-tabs or more screws hold most of the internal shielding together. I won't go into further detail--if you get lost before you get inside, stop!

On ANY STe machine, the memory cards are common plug-in modules called "single in-line memory modules", or SIMMS. These can be bought through most electronic supply, computer supply, and swap meets. "Page mode" SIMMS are used, by far the most common and inexpensive, and the MAC SIMMS are the same. Atari uses 8-bit wide, but the 9-bit wide (with parity bit, used in IBM) can be used without modification. The cards are available in 256K and 1 megabyte sizes.

All STe machines appear to have four SIMMS sockets (despite scattered scare reports to the contrary). Memory configurations can ONLY be 512K, 1 meg, 2 meg, and 4 meg. The TOS can tell what memory is available, but can't use any in-between sizes, so mixing cards for intermediate memory totals can't be done. In a 520 machine, a 256K card will be in slots 1 and 3 (counting from the front of the sloping unit). In a 1 meg machine, all four slots will have 256K (you CAN'T do one meg with one card!). A two meg setup has a 1 meg card in positions 1 and 3, and a 4 meg setup has all four with a meg each. Those are the ONLY combinations that work. But it's as easy as plug and play!

A few things to watch out for, however, include some memory cards (even the ones that may come in your Atari) that have through-pins protruding past the circuit board far enough to touch another card in a full installation. They don't matter if you have only 2 cards, but to use them with 4, you may have to trim those pins with tiny clippers. Just look it over carefully, and beware static electricity when handling and clipping.

STACY 2 machines are different, using more rare low-profile "SIPS", or "single in-line package" RAM, using wire leads instead of the bulkier card-edge connector of SIMMS. The Stacy 4 machines are not socketed, but the 2 meg model is. The Stacy 1 is a rare animal, but at least one company (JRI) offers a special board to upgrade it to two or four meg. But just getting inside a Stacy portable ST is involved enough to scare most of us off. This is a good one to let the dealer do.

In the new TT series, memory upgrade is easy but pricey. Both "ST RAM" and "TT RAM" for the TT is on special proprietary circuit boards, and can't be populated with common swap meet chips. Atari list prices: 2 meg ST RAM, \$379.95; 8 meg ST RAM, \$1,199.95; 4 meg TT FASTRAM \$759.95; 16 meg TT FASTRAM \$1,999.95. Aftermarket TT memory boards are just beginning to appear at more competitive prices and with a wider range of size options--up to 32 meg so far! (Check the product releases area in the January 1992 issue of AtariUser.)

OTHER KITLESS UPGRADES

Making a 1-meg machine out of most 520STFM units is nearly as easy, but takes soldering and some technical advice. These computers are (usually!) just like 1040STFM's but with 16 chips missing. The printed chip outline and solder holes are there, but usually soldered closed. Add the 256K x 1 RAM chips (getting almost free these days!), resistors or capacitors if they aren't there already, and change a pair of memory control lines. That's the catch--the control traces are different on each board revision. You'll need a more thorough set of directions that we have room for here, sorry. But the electrical traces on the circuit board are VERY delicate, and can be burned right off the board with the wrong technique or too hot an iron. Use a small soldering iron, 30 watts or lower, anytime you work on computer circuit boards.

Similarly, most Mega 2 computers are just Mega 4's waiting to happen. You'd add 16 one meg chips--sometimes! A few late production Mega 2 machines had no traces or places for the additional RAM chips, making it impossible to simply "finish" it into a Mega 4. Also, some machines (mostly later production) have an MMU or buffer chip that can't quite deal with more than 1 or 2 meg, even though it was fine as built. You might have to replace one to get your unit running. Get detailed technical help or documentation before you start.

It's said that "real" Mega 4 computers that failed a memory test in the high banks during manufacture were sometimes "repaired" by knocking them down into Mega 2 machines via a couple of trace cuts. If you happen into one of these, you might find that an upgrade will cost you only one or two chips and a trace repair. Finding the bad chips(s) on the board would be your only challenge.

Kitless upgrades for other Atari configurations require desoldering existing parts, cutting traces, adding jumpers, piggybacking chips on each other, and a variety of other frightening procedures that each are able to turn your computer into a doorstop if done wrong. Kids, don't try these at home. Buy a kit.

KITS

You'll see plenty of memory upgrade kits offered for sale in this and other Atari publications. One meg, 2.5 meg (a really nice working size!), and 4 meg sizes are offered, and many of them let you do a

little now and add to your memory later. All of the current crop seem to be quite operational and satisfactory, but each has its fans and its idiosyncracies. Here's what is said of each, but these are neither endorsements nor condemnations. Check the ads and talk to the dealers to find the one you want.

JRI: Using SIMMS and an all-soldered-in arrangement, this is the favorite of many shops as a dealer upgrade, but is more work.

TECH SPECIALTIES: The company's anti-customer attitude was the worst part of this early unit, preferred by many.

ZUBAIR: A pin-grid arrangement for attaching to the MMU requires hot glue to be stable, plus a leg-insulation scheme requires extra care. Not as easy as advertised but good docs.

AERCO: An early favorite, sometimes leaves a gap in the case of 520/1040 units. Documentation was poor.

EZ-RAM: A pronged device that pushes into the MMU socket works but can creep out be difficult to get into the socket. The company (Terrific) appears to be defunct.

XTRA-RAM: Imported, "solderless", uses SIMMS. Requires a reconfiguration of jumpers for different memory that can be confusing. Still good overall.

DEALER INSTALLATION

For most of us, here's your best choice: let your dealer do the dirty work, and you won't have to worry which method or kit he uses. Any of them will work fine if installed correctly, and that's the dealer's job. And dealer installation is the only way you get the peace of mind called a warranty.

I contacted a dealer local to me who installs the JRI unit into 1040 machines, 2.5 meg for \$259, and 4 meg for \$359. He prefers the soldered unit because "they never come back, no matter how the machine is handled," but says that other units using clips and less solder might be better for a novice to install. Call around; most of the dealers you see advertising in AtariUser will do upgrades via mail.

- John Nagy, with special thanks to Tony Lee of the Computer Network, in Glendale, California, (818) 500-3900.

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* PERUSING COMPUSERVE                               by Michael D. Mortilla
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A tutor who tooted a flute
Tried to teach two young tutors to toot;
Said the two to the tutor:
Is it harder to toot, or
To teach to tutors to toot?

Anonymous

The first messages we encountered this week were from forum members who were questioning the Atari File Finder (ATARIFF). Specifically, the frequency of updates and the software used to manage all that 'stuff.' The thread moved to a discussion of CompuServe itself, and the massive amounts of time and energy used in operating this beast. SYSOP Bob Retelle gives us a little insight into one of CIS's competitor's systems in his message..."[do they have] a bunch of multi-ton air conditioning units on the roof running 24 hours a day, 365 days a year... or have an entire building full of heat producing mainframes, disk drives and all kinds of ancillary processing equipment making heat for those air conditioners to cool...

The electric bill at our installation is incredible... (we even have four huge diesel generators and rooms full of huge batteries for those times when Edison can't supply us with what we need :)

And that's only for the main building... maintaining a world-wide data network means having installations in every major city where you have customers, a staff to keep that network running, and phone lines to tie them all together..

And phone bills...! They use the empty printer paper boxes to store the phone bills... several of them... each month...!

They keep telling us to shut off individual disk drives when they're not in use to help keep the electricity bill down... (that "modern" TTL stuff seems more suited for electric toasters than for computers.. :)

You're right, the bottom line is probably more than any of us (except Pattie, maybe) could imagine spending... but it's a heck of a lot lower than it might seem at first..."

Admittedly, some of us seem to relate to the telecomputing maze by what appears on *our* screens. It's easy to forget the complexity of a system like CompuServe when we're online. It sure is humbling to realize what we're actually connected to!

But getting back to the subject at hand, we can't blame *just* the software for a sometimes "slow" system. We can blame... well, we'll quote Greg Wagman right about now: "I begin to see the sort of balancing act that CIS is doing with communications, users, hardware, disk space and network bandwidth. I sure hope they've got some good tools for monitoring the aforementioned. If I were in their shoes, I sure would have... <g>

Jim, what you say seems pretty obvious, but the scroll rate for messages in such large bases would become even faster than now. For example, in the MIDI forum it's a couple of days (like, 2). If they increased the number of message sections without significantly growing the file size, many (most?) messages would scroll before they were read... not an exciting prospect <g>.

The obvious answer is to provide more storage. Part of their problem may be that they're tied into old Operating software that doesn't allow transparent disk sharing (a la NFS or RFS). That way, the user load could be spread across hosts and multiple hosts could share the disk resources...

Ah, well, I'm sure there are good people at CIS who bemoan exactly the same things. Been true of every place *I've* ever worked ("What we

could do if we had...").

Early on in this thread the discussion quickly turned to money; specifically, how much CIS makes! There was no clear answer, only speculation. But what speculation! Even conservative estimates placed the figure at *many* millions per year. Per month! Anyway, it doesn't look like it's gonna slow down, overall! Sure the economy has taken a few hard blows, it's tax time and an election year (in the states- keep forgetting about you folks who aren't in America-sorry!), but one thing we will always need is information, and we want it fast and accurately. And we're getting it. Just about *anything* we want.

This may sound like an ad for CIS, but it is not. Considering the total system, with all it's nuances, mechanics, data and users (!), we think that it is safe to say that the people running the CIS operation are doing a phenomenal job and a tremendous balancing act.

Well, let's hop off the CIS carousel now and jump back on the Atari roller coaster... <wheweee...> Robert Delius Royar writes, 'I bought an ST in 1986 because

1. I liked the 68000 instruction set and wanted to learn it better
2. A license just to work on a mac at any decent level was 3X what I paid for the ST + docs + developer's pac (and the Mac license did not include hardware)
3. The screen on the ST (in color even) was far easier on my eyes than any PC then available. The dot pitch on the old SC1224 is still better than a lot of those VGAs being marketed

So I still like my ST. It's a joy compared to the IBM and Mac computers I use at work. It communicates better with a Vax (using Uniterm) than the PCs and the Macs do using pricey emulators. I can write my own tools and even do all sorts of legal low level stuff with the Bios and xBios that IBM never dreamed of. And even Gem code requires fewer parameters than the equivalents on the other machines. I just wish I could find a C source translator that would convert my ST /Gem stuff into Windows or the Toolbox/QuickStart code so I could port software to those "low-end" machines the rest of my colleagues and student use.

Alternatively, I wish Atari could afford to provide Hardware to schools (as do IBM and Apple) so we could get a platform for development.

Robert Royar (English teacher, programmer, and converted Atari user)"

And no, this is not an Atari ad, but it could be. Even for those of us who can't program -Print "Hello World"- the Atari has remained incredibly easy to use and totally flexible in a wide array of applications.

So why the sudden optimism here? Well, when we consider the amount of trouble we get from so many other machines and businesses we deal with, it's nice to acknowledge the things in our lives which work with and for us rather than against us. Isn't that enough of a reason to thank them?

THANKS ATARI AND COMPUSERVE!

Ah, that feels better, back to business <snarl>. We noticed that the POOLFIX has itself been fixed! There is a version out of Germany called POOLFIX4 (we believe it is on CIS). Charles over at CodeHead tells us that the latter version follows the XBRA protocol. This led to a discussion of vectors which led to a little confusion on what vectors actually are. Boris Molodyi, as usual, had some helpful comments to make: "Vector, in this case has nothing to do with vector fonts :-) It's a place in memory, storing the address of some subprogram in OS. Usually, it is used for interrupt handling. For example, if you use a mono monitor and pull the cable out of your ST, it generates some sort of interrupt, the system looks for a certain vector, and transfers execution to the address this vector points to (hence vector). In this case it happens to be a warm boot subprogram."

Rob Rasmussen countered: "OK, then why are they called Vector fonts and graphics? I know what they are, I think, just curious about the name."

To which Keith Jackson replied: "Because the positions of two points can be described in two ways. If you simply put that they are so far apart then you have a scalar quantity. If the absolute positions are quoted you need both distance and direction so they would be so far apart and an angle of ??? degrees (say). That is described as a VECTOR quantity."

Vector graphics use mathematical descriptions to produce shapes. Their advantage over bitmapped images is that they can be scaled without loss of quality. To double a bitmapped image requires four times the dots, hence the blockiness. Doubling a vector graphic simply places all of the nodal points further apart but the line is drawn between them each time so it doesn't deteriorate."

Does all this stuff actually *happen* whilst we bang on the keys and drag our mouse around, always tapping on the base of it's tail area? You bet it does. Any sometimes things go wrong, but it pays not to loose your temper and keep it light. Consider this exchange concerning a problem with a version of Quick CIS. The parties are Richard E. Paddock, Neil Burton and, of course, Jim Ness:

Fm: Richard E. Paddock
To: Jim Ness

Jim,

You may remember a while ago that I complained about the mouse-into-the-menu-bar-and-disable when the Read Messages dialogue was open? Neil mentioned the same problem in a message, and I suggested he try the test. And he found it. So I guess you need to dig that fix out again.

Dick;

Fm: Jim Ness
To: Richard E. Paddock

Dick -

I wasn't able to reproduce the mouse problem myself.

Could you repeat exactly how you make it happen?

To: Jim Ness

From: Neil Burton
Watch me Jim...

[illegible]

There... Did you see what I did ??? 0-)))) <BIG CHEEKY GRIN>"

And in the All-You-Can-Do-Is-Feel-For-The-Guy department, we hear from John Damiano: "I have had a major disaster. Something (Adspeed problem..I don't know wiped out my HD and then when I tried to restore it from the Syquest it wiped out that too.!"

Ouch! HD and back-up gone! Later in this thread (it seems we all had horror stories) we read: "Any backup that is not convenient to do is a backup that will never get done."

To close on a somewhat happier note <pun intended> we scanned the MIDI library in the Atariarts forum and discovered there is a proliferation of music files (MIDI standard and other formats) and programs to satiate most musical tastes. From Editor/Librarian programs to works by Bach to a light show for you color monitor, you'll find it in Library 5 at your nearest Atariarts forum.

Later...

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* PORTFOLIO OWNERS UPDATE by B J Gleason

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PORTFOLIO ALERT:

You are lost in a maze of twisty tunnels, all alike. The Original Adventure game, Collosal Cave, has been packed onto a ROMCard for the Portfolio! \$49. Contact the Monterey Bay Whaling Company, (408) 475-4290.

256k, 512k, and 1 Meg Memory Modules are available for the Portfolio from DIP systems in England. They work just like RAMCards, and measure 20*50*70mm. Contact DIP, 32 Frederick Sanger Road, Surrey Research Park, Guildford, United Kingdom, GU25XN. (0483) 301555. The prices (in pounds, check exchange rate when ordering): 256k - 182.56; 512k - 252.13; 1 Meg - 373.87.

Another Portfolio newsletter, but with a difference: a disk. David Stewart, editor of the "Re:Port Newsletter" publishes bi-monthly.

Re:Port will give you insights into how the Portfolio works and provides at least two programs on disk (3.5" or 5.25") per issue. Re:Port also offers discounts on Portfolio products. Newsletter/disk subscription, \$50 for six issues. Re:Port Newsletter, 1618 South Beech Court, Broken Arrow, OK 74012.

NEW CARDS FROM ATARI: As this column goes to press, Atari is releasing several new ROMcards for the Portfolio. The first one is Portfolio Chess. This is one tough player, and allows you select your own skill level. The Instant Speller, a program to spell check your documents is also here now, as well as a Limited Edition "Terminator 2: Judgement Day" Card, in conjunction with release of the movie on videotape.

THE PORTFOLIO CHRONICLES

Tiny, tiny Desktop Publishing

Desktop Publishing on the Portfolio? Well, not exactly. But new software allows you incorporate screen snapshots from the Portfolio into your documents--and vice versa, sort of...

PGCAP is a new program that will "capture" a screen image on the Portfolio and save it to a disk file. This Terminate and Stay Resident (TSR) program is requires less than 1k of memory, and is activated by pressing <ALT-S>. This will copy the contents of the screen to a file on your disk. Depending on the screen mode, the file extension will be .PGT if in text mode, or .PGF if the screen was displaying graphics. The main filenames will be "SCREENA", "SCREENB", etc., to allow you up to 26 screens per session.

TIP: Each time you start PGCAP, it resets the filename back to SCREENA. Be sure to save the original images before starting a second session.

Once you have captured the screen images, you can PGCONV to convert them into a form that can be used by a desktop publishing package. PGCAP will import .PGC, .PGT, and .PGF files and export .PGC, .PGF, as well as .IMG (Gem) and .WPG (Wordperfect). Figure 1 is a image from the Portfolio that has been converted into an .IMG file.

...AND BACK AGAIN...

The reverse is also now easy. PGF Maker is a program for the Atari ST that lets you make screens by simply cutting a part of any DEGAS format monochrome ST screen. Now making company logos or any graphic for use on the Portfolio can be done using scanners and graphic editors on the Atari ST, then clipped to Portfolio screens with no loss of resolution. The results are quite impressive. Bruce Coleman programmed it in GFA Basic, and asks a shareware fee of \$10. PGF Maker is available on the telecom services or directly from Bruce at 456 Archglen Way, San Jose, California 95111.

ANIMATION

On the Portfolio? YES! Don Messerli, of the Software Vinyard, has been working furiously on an Animation Package for the Portfolio, and the results have been staggering. Depending on the complexity of the image, the package is able to display anywhere from 16 to 20 images per second on the Portfolio's LCD screen. To see the results of his labor, download PGFLIX, the animation package, and either DOMINOS.ZIP or

HORSE.ZIP, the mini-movies. Mr. Messerli has also released a tool so that you can create your own animation, called MKPGX1. Word on the street has it that the APORTFOLIO forum is going to host a contest for the best PGFLIX animation in February or March.

BIO: BJ Gleason is an instructor of Computer Science at The American University in Washington D.C., and he's been programming for over a decade. He's the author of over two dozen utilities and games, including PBASIC 4.9, the 'freeware' BASIC interpreter designed specifically for the Portfolio. His Email address is BJGLEAS@auvm.american.edu and his Compuserve ID is 73500,2517.

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* BASIC AT COMMANDS -- Part 1 of 3
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This article discusses configuration registers and result codes and contains a comprehensive list of basic AT commands, as well as the extended AT command lists for those modems equipped with MNP5 and V.42/42bis. In addition, for your convenience, modem default lists have been included.

Here are the sections discussed in this article(s):

DO YOU NEED TO READ THIS FILE?
ABOUT AT COMMANDS
THE AT COMMAND LISTS
RESULT CODES
CONFIGURATION REGISTERS
PROGRAMMABLE OPTIONS NOT SAVED IN NVRAM
PROGRAMMABLE OPTIONS SAVED IN NVRAM

DO YOU NEED TO READ THIS FILE?

The beginning paragraphs of this file contain general information that will acquaint you with AT commands. You will probably want to read these paragraphs, and then browse through the other sections. Later, you can refer to this file as you learn more about your modem. Keep in mind that most user-friendly communications programs allow you to manipulate AT commands via easy-to-use, menu-driven software; however, there may come a time when you will need to directly manipulate your modem. This file will come in handy when that time comes.

ABOUT AT COMMANDS

Your new Megahertz modem uses Hayes commands, also known as AT commands, to communicate with your computer. For this reason, the Megahertz modem is said to be Hayes-compatible. The Hayes command set is what you or your communications package uses to tell the modem what to do and how. As you might expect, the Hayes command set was developed by Hayes, the modem manufacturer.

Hayes commands can be thought of as "words," all of which make up a "language." This language, like most others, has a specific syntax that must be used in order for it to be understood. Typically, these commands operate invisibly. In other words, when you execute a function of a communications program, such as automatic dialing, you

don't particularly notice that the program issues an ATD dialing command.

A basic understanding of Hayes commands and how they work will be useful as you learn to operate your modem. Sometimes, you will need to change an AT command or string in your communications program so that the modem will operate as desired. For instance, if you use a phone with a pulse rather than a tone dial, you must change the communication program's AT command from DT to DP. In addition, many communications programs allow you to communicate directly with the modem. For instance, instead of using a program's dialing directory to initiate a call, you can type ATDT, the phone number, and any other specific AT commands, directly onto what is commonly referred to as the Terminal Mode Screen, and the modem will carry out the requested functions.

Note: Terminal mode is the mode in which you can communicate directly with the modem. Most communications programs have terminal mode capabilities; however, you will need to check with the documentation that came with your communications program for the exact mode name and instructions on its use.

All Hayes commands, except the REPEAT command A/, are preceded by the attention command AT and followed by a carriage return <CR>. In essence, this initial attention command, as the word attention implies, lets the modem know that its services are required; the modem will carry out the commands that follow the initial AT command.

THE AT COMMAND LISTS

This section contains three lists:

- 1) Basic AT Commands
- 2) MNP Commands
- 3) V.42/42bis Commands

The last two lists apply to you only if you have purchased a Megahertz modem that has the letter M incorporated into its product name, such as the P224FMV, AR124M, C324FM, etc.

NOTES:

- 1) In the following lists, <CR> is used to indicate that you need to hit the Enter key.
- 2) The letter "n", as in Bn, is used to indicate a variable, such as 1 or 2, that you can change according to what you desire the modem to do.
- 3) The command buffer holds 40 characters before a connection is made. After a connection is made, while in the escape state, the buffer holds 10 characters.

Commands &W and A/ do not work after the modem has gone On-line.

- 1) Basic AT Commands

* (AT) Attention Code:

The attention code, "AT", begins every command line except A/. AT may be entered as upper or lower case characters, and cannot be deleted using backspace or delete keys. More than one command can be placed on a single line and separated with spaces for readability. The command

line must end with the ASCII character stored in S Register 3, which defaults to decimal 13 (Carriage Return). A line with no carriage return will be ignored. Commands following the AT are processed after receiving the carriage return character. This attention code is used by the modem to detect the bit rate and character format of the connected Data Terminal Equipment (DTE).

Example: AT <CR> An OK message should be returned.

* (A) Answer Command:

This command causes the modem to go off-hook and take control of the telephone line (in answer mode) from the associated telephone set. After receiving this command, the modem cannot accept any more commands because it immediately answers the call and goes into the data transmission mode. While in the data mode the Escape code (+++) will return the modem to the command mode.

Example: AT A <CR> You should hear a high-pitched tone.

* (A/) Repeat Command:

AT does not precede this command. The repeat command instructs the modem to execute the last command line stored in the command buffer. For example, the repeat command can be used to redial a number that was previously busy. This command is neither followed by a carriage return nor preceded by the attention command AT. THE COMMAND BUFFER IS LOST AFTER ENTERING THE HANDSHAKE MODE. Once in the handshake mode (the period between when the host answers the phone and data is transmitted) the command buffer changes from 40 characters to 10 characters; therefore, the last number dialed is lost after entering the handshake mode.

Example:

AT DT 123-4567<CR>	Dial the number indicated.
BUSY	Indicates line is busy.
A/	Repeats last command which is the dial command

* (Bn) BELL/V.24 Protocol Compatibility:

The B command selects the protocol for 300 and 1200 bps operation. This command selects the mode of the data set between CCITT V.22 and V.21 and Bell 212A modes.

The B command is ignored when the modem operation is at 2400 bps. B0 sets the modem to CCITT mode for 300 bps to 1200 bps data transfer. The default, B1, sets the modem to Bell 212A mode.

The B0 (CCITT Mode) protocol sends 2100 Hz for 3.3 seconds and 75mS of silence followed by unscrambled ones in the answer mode, while the B1 (Bell) protocol simply sends 2225 Hz.

The transmitted signal in the originate mode sends scrambled ones at 1200 for both B0 and B1.

Example: AT B0 <CR> Selects CCITT mode.

* (Ds) The Dialing Commands:

The D command causes the modem to go into auto-dial mode in switched line, or to originate a call in leased line mode. The parameters for this command include digits 0 to 9, touch-tones A to D, *, pound sign, the period and slash, P, R, T, comma and semicolon. Punctuation (parenthesis, hyphen, and spaces) entered for readability are ignored. Dialing command parameters are described below.

P,T These parameters select between pulse and tone dialing.
Dialing begins after the timeout period defined by register S6.

Example: AT DT <CR> Selects tone dialing.

, The comma causes the modem to pause for the time specified by register S8 (default is 2 seconds). This parameter is used, for example, to cause the modem to pause between dialing an external access code from a PBX and the actual telephone number.

Example: AT DT 9,123-4567 <CR> Tone dials 9, then pauses for 2 seconds before dialing the remaining numbers.

; A semicolon placed at the end of a dialing command places the modem in command state and does not provide connection with another modem; rather, it holds the line and waits for other commands. After the modem dials the numbers that precede the semicolon, it will return the result code "OK." This parameter is useful when dialing long numbers.

Example:

AT DT 1-800-123-4567;<CR> Dials the first number.
AT DT 4567890<CR> Then without dropping the line, dials the second number as well.

@ The @ parameter causes the modem to wait for the time specified by register S7 for one or more rings followed by 5 seconds of silence before going to the next symbol in the dialing string. S7 default is 30 seconds.

Example: AT DT 9 @ 123-4567<CR> Dials 9, then waits for 5 seconds of silence before continuing with the rest of the numbers.

! The flash command causes the modem to go on-hook for 1/2 second. Flash might be used for transferring calls.

S Dial number stored in NVRAM (See &Z Command).

R The Reverse command at the end of dialing permits the establishment of a call in reverse mode, ie, the local modem, which originated the call enters the "answer" mode. This would be a useful command for communicating with an "originate only" modem at a remote site. The R modifier needs to be the last character of the dialing string.

Example: AT DT 123-4567R<CR> Dials the number then places the modem in answer mode.

W Causes modem to wait for a dial tone while dialing.

Example: AT DT 9 W 123-4567<CR> Dials the 9, then waits for another dial tone before dialing the remaining numbers.

* (En) Echo Command:

The Echo command determines whether or not the modem will echo the characters sent to it while in the command state. E1 causes the modem to echo, which is the system default, and E0 sets the modem to no echo.

Example: AT E0<CR> Echo off
 AT E1<CR> Echo on (default)

* (Hn) Switch-Hook Control:

The H0 (default) command will cause the telephone line relay to disconnect. The H1 command will cause the telephone line relay to go off hook.

Example: AT H1<CR> Takes the line off hook. Equivalent to removing the receiver on telephone hand set.

* (In) Request Product Code & Checksum:

I Requests the product code. The modem will respond with 24x, where x equals the software Revision Level.

I1 Causes a checksum to be computed on the Rom and returned as three ASCII numeric characters followed by a carriage return and line feed.

I2 Returns a computed message (the message "OK").

I3 Requests the firmware revision level.

I4 Requests the modem to display its configuration settings.

Example: AT I <CR> Returns the internal rom revision level.

* (Ln) Speaker Volume:

L, L0, L1 Low volume
L2 Medium volume (default)
L3 High Volume

Example: AT L3 <CR> Sets the volume of the speaker high.

Note: Also see the Monitor on/off commands "M, M0, M1, M2 and M3".

* (Mn) Monitor On/off:

This command switches the speaker monitor amplifier output. The default will be on except when receiving carrier.

M : speaker is off
M0: speaker is off
M1: speaker is off while receiving carrier (default)
M2: speaker is always on
M3: speaker disabled while dialing or receiving carrier

Example: AT M0 <CR> Turns the speaker off.

Also see commands "L, L1, L2 and L3".

* (On) On-line:

The O command is used to return the modem to the on-line mode after you have brought it to the command mode with the escape code (+++). O1 will cause the modem to return to the on-line state and initiate a retrain sequence (in 2400 bps only). Also see &D and the Escape code sequence (+++).

Example: AT O <CR> Returns from terminal mode to on-line mode.

* (Qn) Result Codes:

The Q command determines whether or not result codes will be sent after the execution of commands. The code Q0 (default) directs the modem to return result codes. When set to Q1, the modem will not return result codes. S Register values, identification codes, check-sum results and results of test modes with self-test are returned.

Example: AT Q1 <CR> Modem will not return result codes.

* (Sr) Direct Register Commands:

AT Sr? This command returns the Decimal value of the S Register r stored in the controller.

AT Sr=n This command writes the binary equivalent of n base 10 in S Register r. The range of n is between 0 and 255.

Modem configuration variables are stored in the S Registers. Some registers are dedicated to one function, and some registers are bit-mapped in order to store information about the status of different commands. For an intelligent DTE, it may be easier to write the desired data into the S Registers, rather than go through the process of stepping through each of the AT commands. An understanding of these registers will allow you to configure the modem at any time, and to change only the parameters you want to change. See the section entitled CONFIGURATION REGISTERS.

* (Vn) Verbal/Numeric (verbose/terse)

The Vn command selects the type of result codes the modem returns after or during the execution of commands. V1 selects word result codes (default). V0 selects digit result codes, which are useful for intelligent terminals or computers. see the section entitled RESULT CODES.

Example: AT V0 <CR> Causes numeric result codes to be returned.

* (Xn) Enable Extended Result Code:

AT X0 or X CONNECT MESSAGE	- CONNECT
DIALING	- Blind (set delay before dial)
DIAL TONE TIMEOUT	- No
BUSY DETECT	- No

The modem blind dials and waits the time period defined in S Register 6 regardless of the absence or presence of a dial tone. The modem sends a CONNECT message after a connection has been established.

AT X1 CONNECT MESSAGE	- Full messages (CONNECT 1200 ETC.)
DIALING	- Blind (set delay before dial)
DIAL TONE TIMEOUT	- No
BUSY DETECT	- No

The modem sends a CONNECT message for 300 bps, 1200 bps or 2400 bps after a connection has been made. The modem blind dials and waits the time period defined in S Register 6 regardless of the absence or presence of a dial tone.

AT X2 CONNECT MESSAGE	- Full messages
DIALING	- Waits for dial tone
DIAL TONE TIMEOUT	- Yes
BUSY DETECT	- No

The modem sends a CONNECT message for 300 bps, 1200 bps or 2400 bps after a connection has been made. The modem waits for the dial tone before dialing. A NO DIALTONE result code is returned if a dial tone is not received in five seconds. The modem does not recognize the busy signal.

AT X3 CONNECT MESSAGE	- Full Messages
DIALING	- Blind
DIAL TONE TIMEOUT	- No
BUSY DETECT	- Yes

The modem sends a CONNECT message for 300 bps, 1200 bps or 2400 bps after a connection has been made. The modem blind dials and waits the time period defined in S Register 6 regardless of the absence or presence of a dial tone. The modem will recognize the busy signal.

AT X4 CONNECT MESSAGE	- Full messages (default)
DIALING	- Waits for dial tone
DIAL TONE TIMEOUT	- Yes
BUSY DETECT	- Yes

The modem sends a CONNECT message for 300 bps, 1200 bps or 2400 bps after a connection has been made. The modem will wait the time period defined in S Register 6 before returning a NO DIALTONE, or will dial if the dial tone is present. The modem will return a BUSY message if the busy signal is detected (2400 bps modem default).

* (Y) Enable Long Space Disconnect:

The AT Y or AT Y0 command sets the modem to disconnect when a space of 1.6 seconds or more is received from the remote modem. The default setting of Y0 disables this option. Command Y1 enables this option. A space of 4 seconds is sent prior to going on-hook upon receiving an H0 command or detecting an ON-to-OFF transition on DTR if the &D option is selected.

Example: AT Y1 <CR> Enables long space disconnect.

* (Zn) The Reset Command:

The Zn (n=0,1) command resets all the features of the modem to the values contained in external nonvolatile memory in location n, and then returns "OK". Any command on the command line after the Z command will be ignored. On power-up, the profile in location 0 will be recalled (ATZ0).

Example: AT Z1 <CR> Reset modem and recall profile 1

* (+++) The Escape Code:

The escape code returns the modem to the command state from the on-line state without releasing the telephone line. This command consists of an escape guard time (defined by register S12, default 1 second) and an escape character (ASCII code of which is specified in register S2 default "+"). The escape character must be entered three consecutive times with a guard time before and after the three characters.

The modem returns to the local command state and sends the result code "OK" without releasing the telephone line connection.

Also see the "0" and &D commands.

Example: +++ While in on-line mode, issue escape sequence.
 OK Modem will return OK message.
 AT <CR> Issue any AT command.
 OK Modem returns OK message.
 AT O <CR> Returns modem back on-line.

* (&C) DCD Options

The &C0 (or &C) command maintains an ON condition on DCD and ignores the actual state of the data carrier from the remote modem. For the default &C1 command, the DCD signal tracks the state of the data carrier from the remote modem (this meets most software requirements).

Example: AT &C1 <CR> Data Carrier Detect follows actual state of the carrier.

* (&D) DTR Options

The &D command is ignored in synchronous mode. When &D0 or &D are specified, the modem ignores DTR.

After the &D1 command the modem will go from data mode to the command state on an ON-to-OFF transition of DTR. All changes in the state of DTR must last longer than the time specified in S register 25.

For the &D2 (default) command, an ON-to-OFF transition of DTR will cause the modem to go on-hook, disable auto-answer and end in the command state. Auto answer can be re-enabled by turning DTR back on. All changes in the state of DTR must last longer than the time specified in S Register 25 in order to be recognized.

For the &D3 command, the modem will assume the initialization state if it detects an ON-to-OFF transition on DTR. All changes in the state of DTR must last longer than the time specified in register S25 in order to be recognized. The result of this command is the same as that of the ATZ command.

Example: AT &D2 <CR> Modem reacts to state of DTR.

(Part 2 Next Week)

~~~~~

To sign up for DELPHI service, call (with modem) (800) 695-4002. Upon connection, hit <return> once or twice. At Password: type ZNET and hit <return>.

~~~~~  
To sign up for GENie service call (with modem) (800) 638-8369. Upon connection type HHH and hit <return>. Wait for the U#= prompt and type XTX99436,GENie and hit <return>.

~~~~~  
To sign up for CompuServe service call (with phone) (800) 848-8199. Ask for operator #198. You will be promptly sent a \$15.00 free membership kit.

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